

WHAT IS CLAIMED IS:

1. A method for dynamically filtering the content of a multimedia program in real time on a segment- by- segment basis responsive to a filter criteria, comprising:

5 extracting audio, video, and transcript features from segments comprising the multimedia program;

generating a numeric ranking for the filter criteria for each of the segments; and

when the respective numeric ranking for that segment exceeds a threshold, processing that segment to thereby eliminate material corresponding to the filter criteria.

10 2. The method as recited in claim 1, wherein:

the filter criteria corresponds to language included in the segment being processed; and the audio portion of the segment is modified during the processing step.

15 3. The method as recited in claim 1, wherein:

the filter criteria corresponds to an image included in the segment being processed; and the video portion of the segment is modified during the processing step.

20 4. The method as recited in claim 1, wherein:

the filter criteria corresponds to an image included in the segment being processed; and the entire segment is skipped during the processing step.

5. The method as recited in claim 1, wherein the numeric ranking is a weighted numeric ranking.

6. The method as recited in claim 6, wherein each weighting factor employed in generating the weighted numeric ranking identifies a characteristic of a respective viewer of the multimedia program.

5 7. The method as recited in claim 1, wherein the numeric ranking for each segment is generated by comparing the content of each segment to the filter criteria.

8. The method as recited in claim 1, further comprising:
when the numeric rankings for proximate ones of the segments each exceed the threshold,
10 merging the proximate ones of the segments and any intervening segments to thereby produce a merged segment; and
wherein the processing step comprises processing the merged segment to thereby eliminate material corresponding to the filter criteria.

9. The method as recited in claim 1, wherein:
the filter criteria comprises first and second filter criteria;
the generating step comprises generating first and second numeric rankings for respective first and second filter criteria for each of the segments;
the method comprising the further steps of:
20 when the respective first numeric ranking for that segment exceeds a first threshold, processing that segment to thereby eliminate material corresponding to the first filter criteria;
when the respective second numeric ranking for that segment exceeds a second threshold, processing that segment to thereby eliminate material corresponding to the second filter criteria .

25 10. The method recited in claim 9, wherein the first filter criteria is associated with a first passive user and wherein the second filter criteria is associated with a second passive user.

11. The method as recited in claim 10, wherein:
the first filter criteria comprises a first set of filter criteria;
the second filter criteria comprises a second set of filter criteria; and
the first set of filter criteria is a subset of the second set of filter criteria.

12. The method as recited in claim 1, further comprising:
providing training segments having content corresponding to the filter criteria; and
learning to identify content matching the filter criteria,
wherein the learning step is performed by device.

13. The method as recited in claim 12, wherein the device comprises a software device.

14. The method as recited in claim 12, further comprising the steps of:
reviewing results generated during performance of the extracting and generating steps;
and
providing feedback to the device corresponding to a review of the results by a controlling
user.

15. The method as recited in claim 1, wherein the filter criteria is freely selectable from
N pre-defined filter criteria and M user-defined filter criteria, where N and M are positive
integers.

16. A parental control system filtering objectionable material from a multimedia
program in accordance with a filter criteria, comprising:
a transcript analysis module extracting first audible features and text from a sequence of
segments included in the multimedia program;

a visual analysis module extracting video features from the sequence of segments included in the multimedia program;

an audio analysis module extracting second audible features from the sequence of segments included in the multimedia program;

5 an analyzer, which generates a numeric ranking for each of the segments and which generates a respective control signal when the numeric ranking exceeds a threshold; and

a filter, which processes one of the segments of the multimedia, program in response to a received respective control signal.

10 17. The parental control system as recited in claim 16, wherein the filter modifies one of the first and second audible features of the respective segment.

18. The parental control system as recited in claim 16, wherein the filter modifies the video feature of the respective segment.

19. The parental control system as recited in claim 16, wherein the filter eliminates the respective segment from the filtered multimedia program output by the parental control system.

20 20. The parental control system as recited in claim 16, wherein:
numeric ranking is a weighted numeric ranking;
the analyzer employs a weight factor in generating the weighted numeric factor; and
the weighting factor corresponds to a characteristic of the intended viewer of the multimedia program.

25 21. The parental control system as recited in claim 20, wherein the weighting factor is selectable from a plurality of weighting factors.

22. The parental control system as recited in claim 16, further comprising a learning module, wherein selected ones of the first audible features and text extracted by the transcript analysis module, the video features extracted by the visual analysis module, the second audible features extracted by the audio analysis module and user data provided by a controlling user of the parental control system are employed by the learning module to generate the filter criteria.

23. The parental control system as recited in claim 22, wherein the learning module comprises a neural network.

24. The parental control system as recited in claim 22, wherein the learning module instantiates a genetic algorithm.

25. A television set incorporating the parental control system as recited in claim 16.

26. A settop box incorporating the parental control system as recited in claim 16.

27. A personal video recorder incorporating the parental control system as recited in claim 16.

28. A client software device incorporating the parental control system as recited in claim 16.